

FACTS AND OBSERVATIONS  
ON THE  
PHYSICAL EDUCATION OF CHILDREN,  
ESPECIALLY AS REGARDS THE PREVENTION OF  
SPINAL AND OTHER DEFORMITIES.

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CAUSES AND TREATMENT OF CURVATURES OF THE SPINE," ETC.



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## INTRODUCTION.

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My attention having been for many years specially directed to the subject of Spinal Disease and Deformities, it follows that the causes and circumstances tending to give rise to these affections have very frequently occupied much of my thoughts. It is true that in many unpromising cases, in those even of very long standing, much may be done for the alleviation of the deformity and towards the restoration of the health, and that in less advanced cases complete recovery, both as regards form and strength, may, under proper management, take place; yet when we consider the amount of suffering, both physical, and, in many cases, mental, which ensues from Spinal Affections, it may truly be said, that in no class of disease is prevention of more importance. These circum-

stances, and the prevalence of such Deformities, form my apology for the publication of the following remarks. They are intended to supply the information required for the prevention of the evil, and it is my hope that the facts and directions here brought together, will not be without influence in producing the effect desired. They are at least the result of much practice, of considerable opportunities of investigation and of close attention to the subject. Of the truthfulness of the views detailed I have a thorough conviction, and hence I submit them to the judgment of my readers with the more pleasure—my object being to render the whole as clear, yet as concise, as possible, and to make it practical without entering into technical minutiae.

Many of the directions are of a purely hygienic character. The medical attendant may lay them down, but judicious and careful parents can alone carry them out and give them proper effect; the parent's duty is as important in this respect as that

of the medical adviser—the latter, without the aid of the former, can do comparatively little, nor can parents perform their duty without close attention and some sacrifice of time, and even of comfort, in carrying out the directions of the professional adviser; but the end is worthy of any sacrifice, for the degree of happiness which a parent enjoys is not small, when the child is seen to grow up in robust health, with a well-formed frame and general physical well being.

9, Langham Place, London,  
Sept., 1852.



## INFANCY.

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The different kinds of Spinal Deformity affect more especially particular periods of life, but as there is no period, even the very earliest, which is not subject to one or other of the forms of this disease, it is necessary in an essay of this kind to make some observations both as regards the food, clothing, and training of the very youngest children. It is true that some of these remarks are applicable to the prevention of other diseases besides those of the Spine, and they are so because they have reference to the improvement of the general health ; but they are also most important with respect to the affections of which I am more particularly treating, and it is to these that the following pages are intended specially to refer.

Indeed there is no period of life of more importance than that of infancy, and none, consequently, which more particularly demands the close attention of the medical adviser. If during this period

of life the health be good, there is every probability of its continuing so during future life (excluding, of course, accidental causes of disease), while, if the child have serious attacks of disease, and if these be not effectually cured, there is much likelihood of the individual being delicate in after life. Subsequent welfare, then, is influenced by the condition of, and by the attention which is paid to, the first stages of life; but not only is the health thus influenced, but even the duration of life is more dependent upon the proper management of infancy and childhood than is commonly supposed; for as the diseases contracted at that period very often exert a morbid influence on the whole of life, so there can be no wonder that, under these circumstances, life should be shortened also.

The great amount of disease and of mortality which takes place in the earlier years of life can be little conceived by those whose studies have not led them to investigate the subject. As no public register of *diseases* is kept, the relative amount of *illness* which occurs in infancy and childhood, compared with after-life, can only be approximately arrived at from the individual experience of medical men, or, to a certain extent, calculated from the amount of mortality which is known to take place



at those periods. The exact amount of mortality at different ages, however, owing to the exceedingly valuable returns made by the Registrar General, can be accurately ascertained, and that which occurs during the early years of life is exceedingly great, and gives some idea of the vast extent to which illness prevails at this period ; thus the following figures represent the total number of deaths, of persons whose ages were ascertained, which took place *in London*,\* for the ten years, ending 1851, and the number of deaths which occurred during each of the years, under the age of fifteen :—

	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.
Deaths under fifteen.	21,266	23,261	24,194	22,633	22,275	26,512	28,378	30,178	21,371	25,712
Total No. of Deaths.	45,195	48,408	50,327	49,277	49,032	60,388	57,446	68,248	46,319	55,064

So that of the entire number of 531,704 deaths which took place in the ten years in London, no less than 245,780, or nearly one-half (46·22 per cent. exactly) occurred under the age of fifteen. From another document, published by the Registrar-General, the ages at which deaths took place in England† in the year 1847, are given in greater

\* Registrar-General—Summary of the London returns of mortality—1852.

† Registrar-General—England: Causes of death, registered in the year 1847—April, 1851.

detail, and it appears that the entire number of deaths registered that year in England amounted to 420,977 ; of this number 188,333 occurred under the age of fifteen, and what is still more remarkable is that no fewer than 158,815 took place by the end of the fifth year, while as many as 88,784 (49,547 males and 39,237 females), that is, more than twenty-one per cent., were carried off by disease or accident *before they had completed the first year of their existence.*

Nothing stronger than this, surely, could be urged to show the necessity of great attention to health during the early periods of life, and that no points should be neglected which can contribute to this paramount object.

Amongst the most important points in the management of children with a view to the maintenance or improvement of the general health, and the prevention of the class of diseases especially under consideration, are—due attention to the food—to the clothing—to exercise and the state of the digestive organs. Some other subjects also demand attention, and they will be noticed in the course of the subsequent remarks, but the four just mentioned are those

which require peculiar care. As regards the first three, the chief responsibility—at least under the direction of the medical adviser—must rest with parents, or those who have the constant charge of the children; the last, together with such other medical aid, as the condition of the health requires, rests with the medical adviser. The plan to be adopted with regard to the medical treatment of each individual case varies so much with the constitution of the child;—its previous health or previous diseases; the precise nature of the disease or derangement of health; the presence or absence of complications, &c., that no directions could be given here sufficiently precise to be useful; nor indeed would such directions come within the scope of these pages—for, in a case where any but the simplest remedies are required, it is always desirable that the medical adviser should be consulted. Under the several heads, however, of Food, Clothing, and Exercise, it will be necessary to offer some observations and directions, premising them by a few general observations on the management of Infancy and Childhood.

From the very earliest period, the most scrupulous attention to cleanliness is essential, and,

with this object in view, the use of the tepid bath, or sponging the body with tepid water, should be had recourse to once or twice daily ; by these means the skin is kept free from any impurities, whether arising from without or from its own secretions, and thus any impediment to the very important function which it should perform is removed. The temperature of the water may vary with the age of the child or the season of the year, but it is not well to use water quite cold for infants, as their power of resisting the effects of cold is much less than in after life. In summer weather, indeed, when the temperature is about or above 60 deg., it may not be necessary further to warm the water, and as the child gets older, even colder water than this may be employed, provided it be not applied too long, so as to prevent proper reaction. It is desirable for the same reason, that the child should not be exposed uncovered to the cold air for an unnecessary period ; but that, after being wiped thoroughly dry, so as to prevent the occurrence of sores where the folds of the skin exist, as at the bends of the thighs, &c., it should be dressed without delay after coming out of the bath or being washed. Soap need not be used at each time with the warm bath, but its occasional employment is of course

necessary, even with the youngest child. When with older children the cold bath is employed, the addition of some bay-salt is often advantageous. By these means an important function of the body—that of the skin—is likely to be more healthily performed, the general tone of the system improved, and there will be less likelihood of the development of that condition which induces rickets, and the various deformities which are apt to ensue in the progress of this disease.

As health does not depend upon attention, however strict, to any one hygienic rule, however excellent or important that may be in itself, so, amongst the general directions relative to the subject before us, a few words may properly be added on the subject of Nurseries, before we come to the more special questions of Exercise, Dress, &c.

In selecting a Nursery, care should be taken that it be spacious, lofty, dry, well ventilated, and well lighted. When the first two of these conditions are fulfilled, an abundant supply of air is afforded for the children; the room is less likely to be draughty, while at the same time the move-



ment of the air is much more like what occurs out of doors, and is much more conducive to health than the atmosphere of a more confined room. At the same time that the room is well ventilated, care should also be taken that the temperature should be kept sufficiently high by artificial means during the colder weather ; and it would be well if the room, even in the winter time, were kept at about 60 deg. to 62 deg., for, as already stated, children have but little power of resisting low temperatures. No fears need be entertained of such a plan rendering the child more susceptible to the cold when exposed to it ; and the notion entertained by some, that keeping a child in a room of low temperature “ tends to harden it,” is most certainly an erroneous one, and as such not without danger in its application. A child that is—when taken out on a cold day—sufficiently warm—(I do not mean over-heated)—is less likely to be chilly and to suffer ill-effects from the lower temperature than one who is already somewhat cold or shivering when it leaves the house. Constant exposure of a child to too low a temperature tends to reduce the general tone of the system.

As regards the bed for the child, nothing is

better than a mattrass of curled hair, so made that the hair can be removed and exposed to the atmosphere from time to time. It is well, indeed, to have two or three mattrasses, so that one may be in use during the time the others are exposed to the air. While the greatest pains are thus taken to make the nursery as well ventilated and as healthy as possible, it should never be used as a *substitute* for the open air. When the weather permits, a due amount of exercise ought always be taken out of doors. Of the value of outdoor exercise during childhood, more will be said presently; but, on the other hand, the nursery should be so managed that it ought never to be considered a punishment to send a child there. The pleasure, or the reverse, with which children will go to the nursery will depend very materially upon the character of the nurse, whose duties, as regards the special subject of these pages, are really important. She ought to be healthy, active, and somewhat young, and should possess adequate strength to enable her to give the child sufficient exercise, by keeping its body in almost constant action during its waking hours. A decided preference should be given to young women of good temper and lively disposition, and particularly to such as are fond of children, and in

whom there is reason to believe that full confidence can be placed.

As these pages have especial reference to the causes and prevention of Spinal Disease rather than to the general health considered in itself, it may seem somewhat unnecessary to offer any remarks on the subject of food. The welfare of a child, however, is, *in all respects*, so intimately associated with its general health, and is so much influenced by the nourishment taken, that I deem a few words essential to this part of the subject.

During the earlier periods of life, and till about the tenth month, by far the best and the only food intended by Nature is the mother's milk. This the child should have in all cases, unless the condition of the parent, in some way or other, counter-indicates its use, for it rarely happens that the supply is deficient, if the mother be in the enjoyment of good health and live in a proper manner ; should this, however, not be the case, the services of a healthy wet nurse should be procured. If the mother may not or cannot nurse, and such a substitute cannot be had, the next best plan is to give the child such food as most nearly resembles that which Nature had intended



for it, care being taken to avoid such as may produce irritation of the stomach or intestines. Barley-water, with a small proportion of fresh cream, sweetened, is one of the best substitutes; or an equal quantity of new milk and water, with a little sugar and cream. Or another preparation may sometimes be used, consisting of equal parts of gruel and new milk, sweetened with sugar; or the gruel may be varied by giving arrow-root, sago, &c. In cases of considerable weakness, asses' milk, where it can be obtained, is very beneficial, and perhaps the best of any. Any of these may be given warm, at intervals of a few hours during the day, and once or twice during the night. A suckling bottle should be used, and care be taken that too much be not given at once. At the period of weaning, food of a somewhat more solid character may be taken. Very light bread scalded with boiled new milk may be given, or the child may take the gruel above-mentioned, and milk poured upon the soft part of a French roll, the whole being beaten up into a thin pulpy mass. By degrees a moderate quantity of meat, which should be cut upon the plate very thin, may be allowed, together with a due proportion of well-boiled vegetables, and some light pudding of rice, or the like. If potatoes are given, it is ne-

cessary that they be mashed with milk, so that no large unmasticated lumps be swallowed.

As the child grows older a longer interval may be allowed to elapse between the periods of its taking nourishment, but regularity in the time of feeding is of almost equal importance as the quality of the food, for either feeding too often or fasting too long is decidedly injudicious. Perhaps once in about four hours will be found most proper, as such an interval will afford sufficient time for the functions of digestion and nutrition to be properly carried on. As regards quality, the great consideration should be its supply—food at once bland, unexciting, light to the stomach, readily digestible and assimilated, yet highly nutritious, and not exposed to the objections to which the use of animal food is liable. In many instances where change of air is resorted to, a change to a proper diet would sooner, and more efficiently, restore the health of the patient.

There can be no doubt that individuals generally consume much more both of solid and liquid food than is necessary for the due maintenance of health and strength. Such persons generally act under the mistaken notion that they are thereby

promoting the energy of the physical powers. But the truth is, they are doing violence to the constitution, and actually curtailing the natural period of existence. Children, too, by eating to excess that which gratifies the palate, are especially liable to overload the stomach, so as to produce, at least, temporary derangement of the health, and, in many instances, by these repeated "derangements," the foundation of subsequent and, too often, permanent disease. Very constantly, indeed, they are allowed thus to eat too much and to take too much liquid, so that, in each way, there is a tendency to have the stomach distended, and its powers consequently weakened. Parents must exercise their own judgments in these matters, and, as no rules can be laid down of universal application, they should, if they feel any doubt, appeal to their medical adviser.

It may further be remarked, that a very common practice, immediately upon a child beginning to be uneasy or to cry, is to attempt to appease it by giving it food. This is a mistake. A healthy child, when properly nursed, will seldom cry. It will generally be found that when children become troublesome in this way, they are from some cause or other in a state of

suffering, either from some derangement in their digestion, some disagreeable restraint or annoyance in their clothing, or, occasionally, from a want of sustenance, yet, from want of consideration, their uneasiness is attributed to the last cause much more frequently than it ought to be. The cause being removed, the distressing cry—being the only means infants possess of making known their wants and sufferings—will immediately cease. Children when very young are apt to acquire a habit of eating their food too quickly and eagerly, particularly fruit and other articles which leave an agreeable taste; mastication is consequently imperfectly performed, digestion impaired and the health consequently injured.

In connection with this subject, there is a point of so much importance that I feel it absolutely necessary to advert to it; I allude to the baneful practice too often resorted to of giving opiates or stimulating liquors to infants or children in order to keep them quiet, or to procure ease or rest for their attendants; such a pernicious habit cannot be too strongly condemned, for, as just stated, some cause connected with the health or dress of the child usually requires removing when it is fretful or troublesome, while the ruin of the con-

stitution, which is being insidiously effected by this vicious habit, is sufficiently shewn by the convulsive starts, the raised and quivering eyelid, by the irregular motions of the muscles and the emaciation and cachectic condition of the child, which are its certain results and its obvious symptoms.

During Infancy, a considerable portion of the twenty-four hours of the day is passed in sleep, a provision of nature which should be encouraged as much as possible. In the course of a few months it will be found that the child will have a less disposition for repose; but when this is observed the child should be got to sleep for an hour or two, twice or thrice in the day. As respects the use of a cradle or bed, that may be left to the choice or the convenience of parents. In some cases cradles are dispensed with; at the same time it is certain that the rocking of a cradle will in many instances compose a child to sleep when other means fail.

## DRESS

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IT has been already observed, that infants have but little power of generating heat. It is therefore necessary that their clothing should be sufficiently warm, though, at the same time, it ought to be quite loose, soft and pliant, so as not in any way to impede the motion of the limbs. All undue pressure, whether upon the chest, abdomen or limbs, should be avoided, as it interferes with the proper movements and functions of the several parts of the body. Bandages, which are sometimes bound tightly round the body, ought to be discarded from the nursery altogether. They are the relics of a custom which once prevailed here, and which still continues in some countries, of swaddling the infant so completely as almost to prevent any motion whatever of the limbs. Against this highly prejudicial custom it is, fortunately, at the present day, and in this country, unnecessary to warn parents, though the injurious effects, if less in degree, of the pressure caused by bandages and improper



dress ought never to be forgotten. The long dress which infants ordinarily wear is often folded, by the nurse, upwards against the feet and over the lower extremities, as she is carrying the child in her arms; this is not a good practice, because it has a tendency to prevent the child moving its limbs with freedom. In one word, every thing in the way of restraint ought to be studiously avoided.

The same general principles which have been laid down with regard to the clothing of infants are equally applicable to that of older children, though, of course, the details of dress will require some modification. Having obtained a considerable amount of strength and firmness of limb, children are, if in health, always desirous to be in action. That they may enjoy the benefit of this natural tendency without unnecessary restraint, their dress should be loose, so as not to compress any part of the body; it should fit easily and be frequently renewed, so as to allow for increase of growth. It is remarkable how instinctively children give way to the pressure of their clothing if the dress in any way constrict one or the other side of the body. Though such a cause, if temporary, may not occasion any permanent deformity, yet it must be borne in mind that the obvious ten-

deney of its continuance is to produce such an effect. Amongst other things, too, great care should be taken that the shoes be of sufficiently ample dimensions, in order that the feet be not cramped, and a habit of limping be thereby induced. The chest should not be over-burthened with clothing, for that obstructs free respiration, but, on the other hand, I protest against the fashion (and it is nothing more) now so commonly followed, as it is said, with a view of "hardening them," of leaving children during the cold weather of winter with scarcely any covering for the legs, or with only short frock, socks, and thin shoes. In summer, indeed, half-hose are better than stockings, for thus the tying which the latter require is avoided, but during cold seasons some further protection against the weather is desirable.

There is, of course, a great difference in the original conformation of children. The offspring of mothers who have been the subjects of disease, with all its attendant weakness, frequently participate, in some measure, in the parent's infirmity, and are less strong and robust than those born under more favourable circumstances. They usually require greater care in their general training; are more subject to the diseases incident to



childhood ; more troublesome in nursing, and longer before they attempt to walk.

On the other hand, the case is widely different with children of hardy peasants, whose employments engage them in full exercise in the open air, and thereby render their bodies strong, active and muscular, and whose wives are exempt, by their poverty, from the thralldom and mischief of stiff stays and tight lacing, and the serious affections which often follow in their train. The children of such persons will generally possess a more perfect organization ; their bodies be altogether stronger, and, consequently, they will require less nursing ; they early show symptoms of activity ; they are more lively also whilst in the arms ; they are able in a very short time to support themselves, and soon manifest all the briskness natural to infancy. Even where a predisposition to disease exists, the amount of illness which may be warded off by care and judicious management is often very great ; while, on the other hand, numerous diseases are engendered in children by want of attention, mismanagement and by neglect. Among these may be enumerated indigestion, disordered state of the bowels, scrofula, rickets &c., and, as a consequence, especially of the last, defor-

mitics of the spine and limbs. Such complaints are often imputed to the impure air of crowded cities and towns, which has, no doubt, considerable influence in the production of disease; but other concomitant circumstances—such as want of cleanliness, unsuitable dress, the absence of proper medical attendance, injudicious feeding, and similar causes—are equally injurious agents in the production of those derangements of the digestive organs which are so constantly met with, and evinced by defective, and, in some cases, by voracious appetite, large and tense abdomen, a foul, pale and furred tongue, retarded dentition &c. When a child is weak and reduced in health, as in the last class of cases, it necessarily becomes more prone to disease than if the general tone of its system were more vigorous. Accidents also—such as falls or blows upon the back &c.,—are amongst the undoubted exciting causes of some forms of spinal disease, especially angular projection; but the tendency to become affected with such a serious result from any given accident will be much greater in one of the above class of cases than in the other.

The same observations apply to the injurious effects which may be produced in children by constricting them too tightly with the strings used

in their dresses ; and to the serious cases of lateral curvature produced in young persons by the use of tightly-laced stays. In all these instances, the same amount of cause applied will produce very different results, according to the original constitution and state of health of the individual. What may produce little or no effect in one class, may result in very serious consequences in the other.

Recalling to mind the general structure and anatomy of the chest, it is easy to see how constriction of its lower part by strings in children, and the pressure of stays as ordinarily worn, act so injuriously ; for while the termination of the 8th, 9th, and 10th ribs, in long and yielding cartilages, and the want of attachment of the anterior extremities of the two remaining ones, increase the mobility of the chest, it is obvious that from this circumstance the circumference of the chest is very susceptible of the effects of compression. This is especially the case during childhood and whilst the body is in a state of growth ; for there is but little power in those parts to resist even a very moderate degree of pressure.

The malformation now so generally prevalent among females, is, in a great measure, the result

of an abuse of civilization, or, rather, it is one of the evils of fashion. In communities in a state of nature it is scarcely known. The savage, unfettered by the restraints of custom, naturally acquires that activity, vigour and muscular energy which are the usual attendants on bodily exertion, the enjoyment of pure air, and exemption from undue restraint. In proportion as nations or communities emerge from a state of barbarism, the dress adapted becomes more complicated; very often it is made so as to interfere with the proper actions and movements of the body. This is more especially the case with the attire of females, for, while the object aimed at is supposed elegance and an improvement in the figure, the end too frequently is *impaired health and physical deformity*. If elegance simply were attainable by any particular apparel, there would be nothing reprehensible in the use of it—it is in its abuse that the error consists; as, for instance, when it has a tendency to be prejudicial to the health of the wearer. There is no satisfactory reason why the attire of females should not be conformable to the preservation of health, and at the same time consistent with a taste for ornament.

Fashion exercises over its subjects so much con-

trol that it frequently leads them to extremes, which, were they really to reflect, they could not but condemn. Its tyranny is such that it compels people to admire, as beautiful, things which are inconsistent with all beauty. Instead of the various articles of clothing being adapted to the form and shape of the figure—which, when not injured by injudicious treatment, exhibits a striking model of symmetry and beauty—the body is thoughtlessly made to form itself to those whims and caprices of dress which are proclaimed by fashion as elegant and becoming. In a word, nature is made to conform to art, rather than art to nature. Notwithstanding, however, the prevalence of this all-engrossing influence, persons of refined feeling and good taste will always regard that attire as really most graceful, attractive and becoming, which is adapted to the figure, the motions and convenience of the wearer.

The originators of fashion are rarely influenced in their inventions by considerations of health, fitness or propriety; they are more frequently governed by an overweening anxiety after that which is novel and eccentric. No wonder, therefore, that the extremes of fashion are so often found inimical to the enjoyment of comfort and convenience.



It would be well if this evil deserved censure merely on account of its inconsistency: it assumes, however, a much more serious aspect when it becomes, as is too often the case, the fruitful source of debility, suffering and deformity; for, be it remembered, that to it especially are to be ascribed those morbid affections and irregularities of the spinal column which, when accompanied with debility of the constitution, produce nervous irritability, dyspepsia, and a numerous train of maladies that embitter life.

As regards the origin of corsets, there can be no doubt that the use of the zone or girdle—the type of our modern stays—is of very ancient origin; and it is probable that in all ages of civilized life the sex has used some article of this kind, from an idea that it was convenient for the support and graceful carriage of the figure. On their first employment, stays were of simple construction and destitute of their present objectionable properties, being resorted to, almost exclusively, for the purpose of suspending from them other articles of dress in an easy, flowing and graceful manner. Whilst so restricted, and not drawn unnecessarily tight, they would not be attended with any mischievous effects. It is probable that

most of the errors and foibles of mankind have had their rise from some motive or notion not culpable in itself, but deserving censure only from being carried to excess. Thus, the unnatural construction and excessive compression of stays have led to an accumulation of bodily *suffering and deformity*, of the extent and consequences of which few are aware.

Not only, however, are modern stays made of a somewhat unyielding material, usually tightly-laced, but they are constructed with so little attention to the *form* of the body, that the pressure is the greatest at the lower part of the chest, which is naturally the widest, whilst there is the most room at the upper part, where the diameter is the smallest—thus practically inverting the order of nature, and causing a complete transformation of this important portion of the body, by making its base uppermost and its apex downwards. They are also made so long as to cause injurious pressure on the pelvis; their tendency being, therefore, to turn the crest of the ilium inwards, and thus to contract its diameter.

The natural form of the female, such as the individual assumes when not entrained by tight

articles of dress, and when in good health, is of course the best and that which is most suitable for the requirements of her existence ; but, as already seen, cases are every day occurring in which the plans of nature are frustrated ; and though—thanks to the Medical Profession—the evils of tight-lacing are lessened now, compared with what they were some years ago, yet there are at the present moment thousands, who, ignorant of the misery they are inconsiderately providing for themselves, are daily sacrificing health, and shortening life, to the morbid vanity of desiring to possess what a vitiated taste calls “a fine figure.” Our promenades, public streets and places of fashionable resort afford abundant evidence of the sad effects resulting from the universal prevalence of this baneful practice. The notion that a woman is more beautiful with a remarkably small waist, ought long ago to have been exploded. As well might we admire the flattened heads of the Caribs, or the extremely contracted feet of the Chinese. Genuine taste has no delight in eccentricities.

There are other and striking *evils* resulting from compression of the chest by the pressure of stays. The functions of the vital organs are injured, and the whole frame is impaired ; the bones



of the chest being contracted and their natural extent of motion diminished, prevent the free action of the lungs; the blood not being sufficiently decarbonized by respiration, becomes deteriorated in quality, and consequently the various systems of the body suffer either in structure or function: the countenance ceases to have a healthy aspect; energy and muscular action become impaired; while a quickened circulation, difficult respiration, diminished breathing capacity of the chest, with palpitation of the heart, are the ordinary symptoms, where tight lacing has been long persevered in. The pressure and confinement produce great derangement of the functions of digestion, preventing the stomach from properly dilating on the reception of food, and impeding the natural peristaltic action of the intestines, and, in some extreme cases, entirely changing the form and position of the viscera, which are thus forced towards the lower part of the abdomen, and so compressed that their proper offices in the animal economy cannot be adequately performed.

As the corsets scarcely allow of lateral motion, or indeed of any other with freedom, the muscles of the chest and back often become atrophied, and as the spine gradually gives way, the other bones

of the chest become displaced from their natural position, the sternum in some cases being forced inwards, in others, the reverse: the ribs, instead of having the graceful curve which they naturally possess, become, in that part below the axillæ, completely flattened, and their extremities, instead of being directed forward, project almost directly downwards, so that the conical form of the chest is, as has already been stated, inverted. Need we, then, be surprised that the female figure is so frequently and so lamentably deformed? Rather ought it not to excite our astonishment that so many of those subject to these appalling evils should escape the consequences?

From what has been already said it is obvious that all pressure upon the chest and abdomen should be avoided as much as possible, more especially during the period of growth. Great harm is done by the use of stays—greater, indeed, than by any other means; because, from their material and construction, they exert a greater degree of pressure than any other article of dress. As ordinarily made, they are unyielding in their texture, and, from being made to lace, they are readily drawn tighter and tighter as the body has by degrees yielded to the previous amount of

pressure. Thus the waist gradually becomes more and more constricted, till the internal organs, as already stated, are not unfrequently displaced. The liver is often altered in form; sometimes this important organ is found increased in length, whilst its transverse diameter is shortened; and I have seen some cases where the external surface was indented with marks of the ribs. Thus are produced vast numbers of cases of lateral curvature—an affection, which, mainly owing to this injurious habit, is common amongst females: amongst males, it is comparatively of rare occurrence. But, while dwelling upon the subject of stays, I think it right to suggest that there are other portions of female dress which may, without care, be prejudicial to the health and form of the body. I allude to the strings of petticoats and other under garments: these are often drawn so very tightly round the waist as to contribute towards producing the physical deformities I have alluded to. Parents, therefore, ought to be especially careful that such articles of dress be suspended by buttons or other means, and that strings be, as much as possible, dispensed with, especially during the period of youth.

A custom prevails, to a considerable extent, of

using a leathern belt buckled tightly round the waist of boys, when they commence wearing their clothes of woollen cloth. This practice, unless adopted with great care, has a direct tendency to induce a contracted state of the abdomen and of the lower part of the chest, similar in effect, though not in degree, to that produced by corsets on growing girls.

Another custom, equally or more injurious, is that now so generally prevalent of very young boys wearing braces or suspenders for their trousers; by this plan, pressure, to a serious extent, is made upon the shoulders and, consequently, upon the spinal column; for not only are the braces made to sustain the weight of the trousers, but, by being worn tight, they interfere considerably with the free motion of the body, and in weakly children, especially where there is any predisposition to such affections, may sometimes actually induce them; and if deformity have commenced, whether the case be one of lateral curvature or of angular projection, their tendency will be to increase it considerably.

The better plan for young boys is to have the trousers buttoned to the jacket or to an under-

waistcoat, as, whatever pressure there may then be, it is much more uniformly distributed, and also over a larger surface of the body—less therefore on the shoulders.

When deformity of the spine has once commenced, it has generally a tendency to increase. With the gradual increase of disease, there is naturally an increase of bodily suffering. The deviation of the spine from its natural form may not at first be observable, but it soon becomes manifest. One of the first indications of it is a peculiar stoop. In lateral curvature, there is an elevation of one shoulder and a corresponding depression of the other. Some unfortunate sufferers, by placing soft pads in the hollow of the curve, and other expedients, may escape for a considerable time, without the curve being generally observed; but the experienced eye will seldom fail to detect it, while their daily existence under such circumstances must be passed in a state little short of absolute misery, on account of the mental anxiety and bodily suffering which they endure. Let it be remembered that such expedients do nothing towards the cure or even the amelioration of the deformity; on the contrary, they are the cause of precious time being lost, when



effective measures might and ought to be adopted, not for hiding, but for removing the deformity.

Quite as objectionable as ordinary stays, and indeed much more so, are the steel stays and other analogous inventions which have been introduced to amend, as it is said, and protect the shape. So far from improving, these formidable instruments destroy the shape. Instead of being useful in the prevention of the deformity, they accelerate its progress and increase its amount. Many patients who have come under my care have worn such instruments for a considerable period, and they have almost uniformly stated that the deformity has increased while they have been used: indeed it only requires a superficial acquaintance with the structure and functions of the body to comprehend the objectionable nature of these inventions, to which I cannot but object, for they are all so made as to press injuriously on some part of the chest, abdomen or pelvis.

As regards stays, however, it neither admits of doubt nor surprise that women should experience a feeling of support from their use after wearing them from the period of childhood, and that, for a time at least, after ceasing to use them, they

should feel a certain amount of discomfort. This is nothing more than might be expected ; but the sensation of discomfort is soon lost and is speedily compensated for by the benefits of the change. Sounder notions are however beginning to prevail respecting the necessity for stays at all. Many ladies have discarded them altogether, and have in consequence enjoyed better health ; their spirits have been lighter, their appetite improved, and they have been enabled to support a much greater amount of exercise and fatigue. Still, owing to the influence of fashion and habit, it can scarcely be expected that any attempt to persuade females generally to discard altogether this part of their attire can be successful. But it is hoped that medical men, by showing the mischiefs attending its use in the present form, may lead to such alterations in construction as will in some degree obviate the evils referred to.

The chief objects to be kept in view in the construction of these articles, in order to render them harmless, are, first, to have the pressure on every part as light as possible, so that there may be the utmost freedom of motion ; and, next, to give them the greatest amount of pliability, with the view of insuring a proper adap-

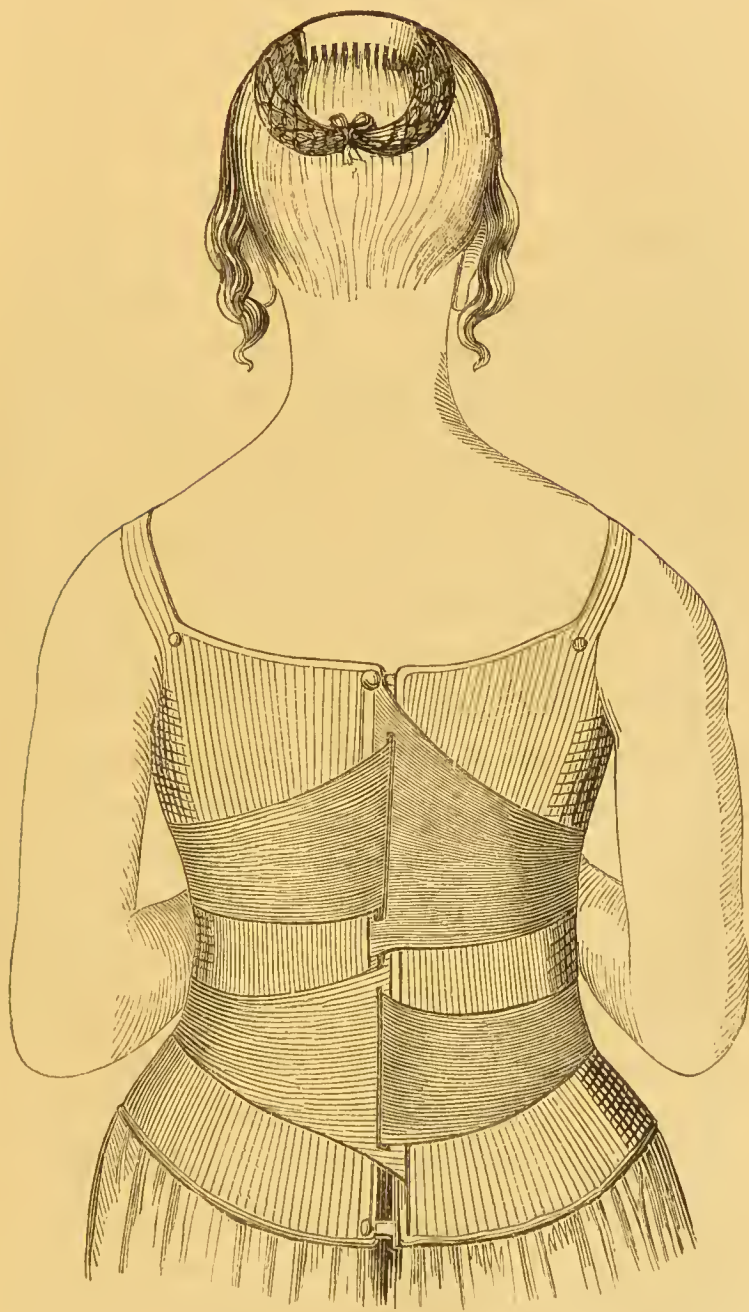
tation to the figure. In growing girls, instead of the stays being tightly girt behind by laces, they should be secured in front by buttons or hooks. For adults, there may be no objection to laces, provided the stays be, in other respects, of proper construction; but in this case the lacing should be in front—a strip of India-rubber webbing, at least an inch in breadth, being inserted on each side of the lace-holes, and a similar one of double the breadth down the middle of the back; the gussets for that part of the stays which covers the hips (though it is proper to observe that the stays ought not to embrace the hips at all), and for that supporting the breasts, should be made of the same elastic material; the shoulder straps should pass directly over or upon the shoulders, and be so constructed as to lay flat upon them, by being inserted obliquely into the stays. The fabric of which they are made should be of a firm but not altogether an unyielding texture. The only whalebones required are two thin ones to protect the lace-holes, and two equally thin on each side to prevent the stays from puckering.

With the view of effectually preventing the injurious effects of ordinary stays, I have for many years been in the habit of recommending what may



be termed "Non-compression Corsets," made in the manner represented in the accompanying engravings. They have four lappets behind, two of which pass through openings made at the base of the other two, and they button or hook in front, so as to do away with the necessity of any lacing whatever: some India-rubber webbing is inserted down the front, and this, together with the peculiar form of the stays, their mode of construction, and their being made of a flexible material, prevents their producing (provided they be of a size proportionate to that of the body) the serious consequences caused by those too generally worn. With these corsets, active exercise—which is absolutely necessary for increasing the strength of growing girls—can be freely used, and compression is next to impossible.





## EXERCISE.

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AMONGST the many important points which it is necessary to attend to with reference to the Physical Education of Children and the prevention of spinal disease, the amount and kind of exercise which should be taken are by no means the least. The physical conditions of the infant, the child and the youth, are so different, that general rules applicable to one or other of these periods do not necessarily apply as regards the others. In infancy and childhood the bones are much more soft and flexible than in after years, and they readily assume, from extraneous causes, very different forms to those intended by nature. This is especially the case when the body is enfeebled by disease, and more so still, if the disease be, as in rickets, one particularly affecting the osseous system. It must, therefore, be obvious that very different kinds and amounts of exercise must be taken by children, not only according to their age, but also according to their health and the condition of their system; and it may be well understood how, by want of attention to these circumstances, many of the irregu-

larities of form, which are not congenital, but occur at an early period of life, take their origin. In proportion to the delicacy of the infant will be the care required in rearing it. Much has often been effected in this way by constant and persevering attention; and many weakly and unpromising children have, by judicious management, arrived at maturity, and have passed through life in the enjoyment of a considerable share of health and vigour.

If parents would have their offspring free from personal defects, if they would have them active and strong, they should commence their attention to them from the time of birth; and although they may not always succeed in obtaining for them the highest state of physical perfection, yet they will generally be able to effect such an improvement in their constitution as may form the basis of future health. If an infant be quite healthy, it is certain to display a great amount of activity; children have, indeed, a natural inclination to use exercise according to the degree of their strength. This is the best criterion by which to judge of the quantity to be used; in this, as in all other cases, nature, rightly interpreted, is our best and safest guide. If, therefore, children be thoroughly well, they can



scarcely have too much exercise, whether in the nursery or the open air. The season and other circumstances permitting, the children should be taken out daily; the nurse should be strong and active, so that she can carry the infant with ease. If the child be obliged to remain within doors, the nursery should be thoroughly ventilated, a pure atmosphere there being as necessary as free access to the open air. Sufficient attention is not always paid to the ventilation of different apartments in dwelling houses; the windows should be regularly thrown open, and the linen and other articles of bed-clothing exposed daily to the open air, as the air of a sleeping apartment, when of limited dimensions, soon becomes impure.

Children should not be set upon their feet too early, but should, if not in the nurse's arms or in the the crib, rather be laid upon the floor, in order that they may exercise their limbs with freedom: placing them too early on their feet is a frequent cause of deformity of the lower extremities. Early attention should be paid, and especial care taken that the spinal column, so tender in young children, may not take a wrong direction. The manner in which a child, and especially a delicate one, is suffered to sit upon the nurse's arm should be carefully at-



tended to, and until it shall have acquired sufficient strength to keep itself erect, the back ought to receive proper support. By being suffered to sink into a crouching posture, with the head and shoulders inclining forwards and the back projecting, a bad habit is soon acquired, which often ends in distortion of the spine. It is desirable that the nurse should carry the child alternately upon one and the other arm, as, when it is carried always on the same, there is often a tendency to an unequal growth of the two sides of the body, or at least to some deviation of the spine from its normal direction. In healthy children, no such consequences may result, or if they occur to a slight extent, they may not be permanent; but as more serious effects may occur in delicate infants, it is expedient that the nurse should habituate herself to the use of both arms. Nor is it in the arms alone that attention is required, for the effect is not less injurious if the child be suffered to sit long in a chair, as, when fatigued, it will naturally adopt that position which, at the moment, affords most ease. Here it is proper to notice two very common and reprehensible modes of raising young children—the one is by the upper part of the arms, in such a manner that the sides of the chest are pressed by the hands or rather the knuckles of the

nurse; the other, by the nurse placing her hands under the armpits of the child, so that the palms press against the anterior extremities of the ribs, and thus force them forwards. By both these modes, the cavity of the chest becomes in time materially diminished, and the sternum or breast-bone pushed out—this being one of the modes by which that deformity in delicate children commonly called “pigeon-breasted” is produced, or by which, at least, any tendency to it is very apt to be increased.

Although, as already stated, exercise is so desirable—and necessary indeed—for the healthy infant, and requisite also, in some instances, for restoring the general health when it is out of order; yet there are conditions under which the amount of it must be limited, or in which it is in some measure counter-indicated; such, for example, is the case when the child is suffering from Rickets. When children are born of decidedly unhealthy parents, when they are mismanaged during infancy, reared in unhealthy localities, deprived of the good effects of cleanliness and fresh air, and under some other circumstances, nutrition goes on imperfectly, and the bones, being insufficiently supplied with earthy materials, become so soft and flexible as to

yield readily to any long continued or frequently applied pressure: they cannot, therefore, properly support the superincumbent weight of the head, and, in case of deformity of the legs, of the trunk also; they therefore give way to a greater or less extent. The precise bones which become deformed may vary from the different causes which are in operation, but those most commonly deformed are the bones of the lower extremities, from the child being allowed, and in some cases almost forced, to be upon its feet sooner than, under such circumstances, ought to be the case.

As regards exercise during childhood, it may be stated as quite certain, that if they be in good health, all children will naturally use sufficient; they will run about and play, and thus put every muscle into action without being prompted so to do by any artificial means. Childhood is, therefore, especially, the period of activity; and if a child become less active than he has hitherto been, or if he be in a marked degree less so than his companions, we may rest assured there is some special cause for the difference, and it then behoves the parents at once to have that cause investigated. The body not being so strong as it was before or as it ought to be, Nature prompts the child to take

the repose which is requisite for restoration to health, and good judgment should certainly be used and full consideration given to all the bearings of the case, before we run counter to the indications thus plainly given by Nature. At any rate, it should not be done without the sanction or except under the direction of the medical adviser; and indeed, when he does investigate the case, it will generally be found that there is some cause which requires removing, before the child should be allowed to take that exercise which its own instinct leads it for the time to abandon. So far, however, from the indications afforded having been followed out, it has been too much the custom for parents to run counter to them, and, if a child were at all "backwards" in walking, to endeavour to teach it how to walk by means as injurious as they are unnatural. At the present day, indeed, such means are certainly much less employed than formerly, —a circumstance to be attributed, doubtless, to the better information disseminated throughout all classes by medical men; yet "leading strings" are even now by no means unknown as part of the appliances of some nurseries; and "go-carts," or contrivances on wheels into which children are put to assist them in walking, and which support the child under the arms while its feet just touch the

ground, have not yet become, as they ought, quite obsolete. If a child be strong and healthy, no such contrivances are required ; if it be delicate, out of health or ricketty, while they effect little of what is expected from them, they may give rise to much mischief, besides diverting the attention from the adoption of such plans as might be beneficial: they are needless in the one case, and in the other positively as well as relatively injurious ; they are artificial means to effect that which, for the time, is better left undone. There may be cases, on the other hand, in which the child would be willing enough to take exercise, and yet in which, for certain reasons, it may be desirable to prevent its using much, or at least to direct the kind of exercise it should have. Thus, in some instances of the disease just named (Rickets), the general health may be apparently so little disturbed, or the child may be so free from pain, that it will be desirous to be on its feet, even after some bending inwards or outwards of the limbs has taken place, so as to a certainty to increase the deformity which already exists. Here the judgment of the medical friend must be had recourse to, in order to limit or change the character of the child's exercise in such a manner and to such an extent, that, while its general health



is maintained, the deformity shall not be increased. Besides, it will, of course, be the duty of the medical adviser to adopt the necessary measures for correcting any existing deformity either of the spine or limbs ; but into this subject it is not within the scope of the present work to enter.

It is not, however, only when the symptoms are marked and obvious that the condition of the child should be carefully ascertained, for in all cases, when the symptoms are ever so slightly suspicious—when a child is at all puny and delicate, and supposed to suffer from the effects of disease—when the symptoms are such as to denote weakness of the back, and consequent incapacity to support the weight of the head and shoulders, it ought without delay to be minutely examined. It cannot be too forcibly or too frequently impressed upon the minds of those who are entrusted with the care of children, that this disease, if attended to on its first appearance, generally admits of an easy and speedy cure ; but the longer it is neglected, the longer will be the treatment, the greater the suffering, and the more uncertain the result. Attention to this advice is the more necessary, as cases are of frequent occurrence in which, by early investigation, incipient curva-



tures of the spine may be detected, which are not even suspected to exist.

Necessary as it is, when curvature of the spine or deformity in the lower limbs has commenced, to give the child as much rest as possible, so as to prevent the superincumbent weight of the head and shoulders from pressing upon the deformed parts and thus increasing the deformity, a proper and reasonable use of exercise in the open air should by all means be encouraged for children free from deformity, as one of the best means of improving the general health and thus preventing such affections. Some of the games which are so well known amongst children are proper, as they call into activity and full play all parts of the body. The hoop, the skipping rope, dancing and gymnastic exercises, may, according to the age and state of the child or youth, take their turn ; thus strength and vigour are imparted and the tone of the whole system is increased, and the general health also participates in the improvement. Childhood and youth being, as already stated, more particularly the periods of activity, out-door exercise is more especially necessary for them, though no doubt can be entertained of the advantages of it at all periods

of life, if we compare the healthy and ruddy appearance of the countryman, travellers and others engaged in pursuits obliging them to be much in the open air, with the wan aspect and the pale complexions of those who pursue sedentary occupations in close, crowded and ill-ventilated apartments. This holds good as regards both sexes and all stations of life.

The gymnasium has of late become a very fashionable place for taking exercise, and the exercises in these establishments are very proper when children and those more advanced in life are in a state of good health. The health being good, the regular course of training which is undergone in a well-conducted gymnasium tends to develop the muscular system, to expand the chest and impart vigour to the frame, though, at the same time, as these exercises are usually conducted in-doors, they should not altogether supersede a due amount of walking or recreation in the open air. They should be considered as auxiliaries to the latter, not as substitutes for it. In some cases, indeed, where a young person is merely delicate, without being actually the subject of disease, gymnastics may be allowed and may prove beneficial, but there are cases, on the other hand, in

which much judgment and discrimination are requisite before they should be sanctioned, and some cases, too, in which their use is certainly counter-indicated ; in such instances they are often productive of serious consequences, as in cases of lateral curvature or angular projection of the spine.

In the latter of these affections, as caries or other organic disease of the vertebræ is always present, exercises of any description can but tend to increase the irritation which exists—to augment the suppurative process which is going on—to render the formation of psoas or lumbar abscesses more probable, or, if they be present, to increase them—and, under any circumstances, to augment the pain and suffering of the patient. Lateral curvature, too, may, in some few cases, be dependent upon caries of the *sides* of the vertebræ, and careful examination is requisite in each case to determine whether this be the cause of deformity ; as, if so, exercise, and, more especially, gymnastic exercise is then as absolutely counter-indicated, as if the caries had produced angular projection of the spine. If, however, the lateral curvature be of the more ordinary description, my experience is still unfavourable to the use of gymnastics as a remedial measure. It must

be remembered that not only is the spine altered in shape, but the ribs are likewise deformed ; and, in severe cases, so much so, that on the left side they form a hollow, in which the scapula has become, as it were, embedded ; while, on the right side, posteriorly, they are so prominent as to tilt completely outwards the corresponding scapula. Now, though, theoretically, the position and shape of the bones might be supposed to be capable of being restored towards their natural condition through the agency of muscular action, yet it is found practically impossible, by these means, to do at all that amount of permanent good which might be expected. Indeed, in not a few instances, even of that form of the disease, especially where the case is a severe one, much harm may be done by the use of gymnastics ; and of these instances, some have come under my notice. Thus, in a case which I published in the *Lancet*, of Dec. 11, 1847, it is stated in the history of the case that “ the patient, not being improved in the following spring (1838), she entered an establishment for gymnastic exercises, where she continued nine months ; she felt more muscular power while she used them, but soon relapsed, and was even worse than before, the curvature having been found to have enlarged considerably.” In short, the gymnasium is very proper for children

and adults in good health, but should be used with great care, or scarcely at all, unless the health be quite sound. If it be not so, the first object of the parent ought to be to consult with the medical adviser, and follow out most exactly the advice that may be given, than which nothing is of greater importance either in a preventive or curative point of view.

## CONCLUSION.

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THE foregoing remarks and directions have of course special reference to the prevention of spinal and other deformities; but the subject of the treatment of these affections has been scarcely referred to, because, on the one hand, it does not come within the intended scope of the work, and, on the other, because I have entered fully into the subject in another work.\* It will be right, however, to add a few words here on the subject of recumbency, as some misapprehension exists respecting it. In some cases it is indispensable, and as a remedy in many of the various deformities of the body, it is of great importance. Its value has been constantly shown in my own practice both in a preventive and curative point of view. In the former, if the weight of the head and upper part of the trunk be taken off the spinal column, and attention be

\* *Practical Observations on the Causes and Treatment of Curvatures of the Spine*: Third Edition, 1849.



paid to the state of the general health, an increase in the disease will not take place: both the curvature and the health will be improved by the spinal column being relieved from the superincumbent weight, which, in its diseased state, it is unable properly to sustain. If the weight and pressure of these parts upon the weakened spine increase the deformity, it is obvious that the removal of the cause will be desirable. To effect this efficiently, recumbency is absolutely necessary: by no other means can severe cases of deformed spine be restored to their natural position, especially when they are complicated with a distorted state of the ribs. Steel stays and similar contrivances can never be effectual for a satisfactory and permanent restoration.

While due attention is paid to recumbency, the functions of the internal economy of the body must be carefully watched, in order to insure their proper action. This is of no less importance than recumbency itself. The state of the chest and its contents must also be particularly attended to, and measures taken to increase the breathing capacity of the lungs. The increase in the expansion of the chest and consequently in the breathing capacity of the

lungs (as shown by the Pulmometer\*) which takes place during the treatment of spinal affections, is uniformly productive of the most beneficial results in the improvement of the general health. Patients, who come under treatment thin and out of health, become stronger and improve in every respect in a comparatively short space of time. These effects are seen even where there is great debility or delicacy of constitution.

Another advantage resulting from this plan is that all pressure on the pelvis—a matter of great consequence to females—is avoided. Among other circumstances not less important, it should be mentioned that there is perfect freedom from pain, as regards the means employed, from the commencement to the end of the treatment, as my experience tells me that setons, moxas and issues are scarcely ever requisite; and in the cases of

\* The Pulmometer is an instrument I have used for many years, and the value of which I am constantly witnessing. It is an apparatus by which the quantity of air can be ascertained which an individual is able to expire from the lungs after a deep inspiration. It consists of a glass vessel marked from above downwards with cubic inches, from 1 to 350. This is accurately suspended in a circular vessel of water, and counterbalanced by means of weights attached to it, with cords passed over pulleys properly arranged. The patient then fills the chest and breathes through a tube into the meter, the rising of which shows, of course, the quantity of air expired, and comparative trials show, with undeviating accuracy, the increased or diminished capacity of the chest or lungs.

young persons, there need not be any impediment to the essential parts of education. The best opportunity is given for regulating the diet, and adopting that course of medical treatment which may be required: proper opportunities are also afforded for the patients to walk out, according to the particular circumstances and nature of the case. By perseverance and attention, the patient soon begins to improve in health, and the distorted parts assume a more natural and healthy form.

The mode of using recumbency is very important. If the patient be laid on the fore part of the body and frequently raise herself on her elbows, the result will be that a very considerable incurvation of the dorsal and lumbar vertebræ will take place, and that very rapidly, especially in cases of angular projection of the spine. As a general rule, I much prefer that the patient should use the dorsal position, the time during which it is employed varying according to the nature of the case. Other remedies should be employed, as pointed out in the work before alluded to.

It may here be observed that as the deformity

decreases, various symptoms directly dependent upon it, likewise diminish, just as those depending upon the state of the general health disappear, as it improves. Amongst those arising from deformity of the chest, consequent upon that of the spine, are various thoracic pains of a neuralgic character, with palpitations of the heart, difficulty in breathing, &c. These symptoms depend upon the distortion which has taken place, the chest being generally contracted, and the capacity of the lungs necessarily much diminished: hence, as I have determined by a considerable number of experiments with the Pulmometer, the breathing capacity of the lungs is really much less in most persons with deformity of the spine (and consequently of the chest, but who are at the same time quite free from organic disease of the lungs,) than in other healthy persons of similar height. On the other hand, the breathing capacity increases, sometimes even to a great extent, as the deformity becomes rectified. The precise quantity of air, which patients can expire, varies much, however, in different cases, and is influenced by the original stature of the individual, the nature of the deformity, and the extent to which it implicates the chest. Thus, in the case of a young lady,

aged seventeen, affected with lateral curvature, the breathing capacity increased in the course of nine months 52 cubic inches, viz., from 78 to 130. In another case, in which the curvature yielded rapidly to treatment, it increased in twelve months, from 100 to 150 inches; and a third may be mentioned, and a very remarkable case, which was under my care in 1843. This patient, then aged 23 years, was exceedingly distorted with rickets, and had been confined to her bed seven years, and to her room nine years: her breathing capacity, which was ascertained at intervals of about a month, increased gradually from 25 inches, which was, at first, the utmost she could possibly expire, to 51, 71, 79, 83, and 90 cubic inches respectively, showing a total increase in the breathing capacity of the lungs of 65 cubic inches. Such an alteration having taken place in the capacity of the chest, it may readily be conceived how difficulty in breathing and palpitations of the heart, complained of in cases of deformity, are remedied. Such a change in the amount of respired air, necessarily exercises an important influence in improving the health of the invalid. This patient, whose residence is in St. Marylebone, has spent from eight to twelve or thirteen



weeks every summer at Hampstead since her recovery ; and is there at the present time, August, 1852.

Another most interesting case was published in the *Medical Gazette* of January 1851. It was that of a young lady residing in the county of Kent, aged 25 years, whose limbs were so completely paralysed that she had not been able to walk at all for upwards of six years, nor even to write a note during that period ; yet within six months she was able to walk out, and she returned home—the breathing capacity of her chest having increased from 60 to 110 cubic inches ; she had gained twelve pounds in weight, and by November following, 1850, sixteen pounds more : the symptoms yielded to an extent and with a rapidity which, I believe I am justified in stating, could not have been obtained by any other means than those employed. I have seen this lady, who is on a visit to her sister in town, within the last few days ; she is in excellent spirits and continues quite as well as she has been, since her recovery.

Much real benefit may also be obtained even when the patients have passed the middle period



of life. Amongst other remarkable instances, one occurred to me some years since (Practical Observations, &c. page 134) in a patient who had been the mother of eleven children. She had been confined to the house three years, and, from inability to walk, was obliged to be carried to and from her room. Her deformity (excurvation of the spine), although very extensive, was so much relieved as scarcely to be perceptible when she was dressed. She subsequently continued free from any return of her complaints, and was quite competent to discharge her domestic duties with comfort and facility. When the extreme state of weakness to which this patient had been reduced, together with her time of life and previous state of health, are taken into consideration, her recovery may be regarded as truly gratifying.

But, in order to secure permanency to the cure, and to remove the various symptoms which often accompany spinal deformity, it is essentially necessary, as already stated, to pay the most close attention to the constitutional treatment. It almost invariably happens that the general health is, in such cases, out of order; the food is mal-assimilated, the nutrition of the system imperfect,

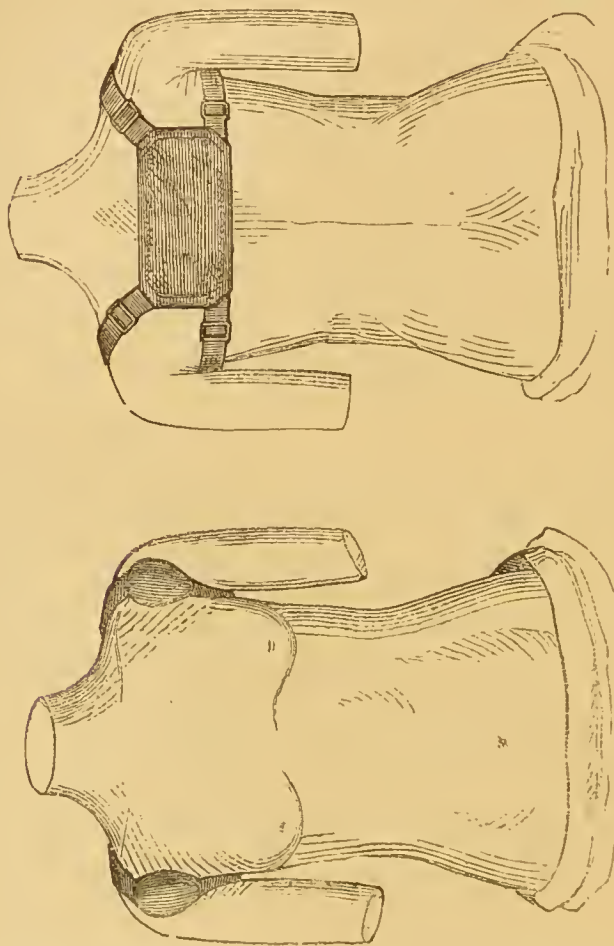
and the secretions unhealthy. These must be rectified by the exhibition of alteratives, purgatives and tonics in due doses, though the precise treatment to be adopted must vary according to the peculiarities of the constitution of the patient and the circumstances of the individual case. What I wish particularly to enforce is, that neither local nor constitutional treatment alone is sufficient to grapple with such cases as the foregoing; but that, to produce satisfactory results, the two must be judiciously united. Then we may expect the reparative powers of nature to assist us: and if both the sufferers and their friends or parents have correct information as to the nature of the disease and the objects of the practitioner, we may also expect their steady and persevering assistance in carrying out the necessary treatment. These points being effected, we may reasonably look forwards to the most satisfactory results.

On the other hand, children, even during infancy, are equally susceptible of efficient relief by proper and steady perseverance. I may mention the case of one, aged 13 months, labouring under a curvature of the spine which caused the left shoulder and side to be considerably higher and

larger than her right; the chest was very prominent anteriorly, and hollow on each side; she had for some months been in a very delicate state of health, having a severe cough and considerable enlargement of the abdomen. At the end of three months, from the close application of the treatment and the great attention of her mother, there was no appearance of deformity either in the back or chest, and her health and form continued in a perfectly correct state.

When patients have undergone the necessary treatment, and have got into a satisfactory state as regards the general health and the deformity, I have, in cases of excurvation, recommended the use of an elastic support, which consists of India-rubber webbing and two cap-like bodies of gutta percha, padded, so as to fit upon the upper and anterior part of the shoulders, — the webbing being so arranged as to pass behind the scapulæ, and thus keep back the shoulders. It may be worn under the dress or otherwise, during a portion of the day, or constantly, as may be deemed most desirable, and is at once easy in its wear and efficient in its action. The great advantage of it, and the points in which it differs from all others, are that

by it no compression is made upon the chest, or abdominal and pelvic cavities ; and the patient



ELASTIC SUPPORT FOR PROMINENT SHOULDERS.

whose case requires such support, uniformly feels more comfortable while wearing it.\*

\* As the foregoing pages have been written with especial reference to deformities of the spine, and to those which have immediate connexion with them, viz. those of the chest—I have deemed it unnecessary to enter into a consideration of the various deformities of the lower extremities. Some of the

I have thus entered somewhat fully into a consideration of the various circumstances which are prolific causes\* of spinal deformity. One most important reason for their being well considered is that by far the majority of them are such as may, when they are clearly pointed out, be entirely avoided. This is especially the case with respect to dress. To the abuse of dress, spinal deformity is most frequently to be attributed. Angular projections arising from caries of the vertebræ, depending in the first place upon a particular condition of the system, but often

most frequent of these are the results of rickets, from which cause the bones of the legs especially, are apt to become bowed outwards, inwards or forwards. When once the deformity has commenced, the weight of the head, trunk &c., pressing upon the legs, tends to increase the amount of curvature, and hence it is desirable that children, who are thus affected, should walk about as little as possible, and that the parents should, without delay, consult their professional advisers.

\* It is a mistaken opinion, and attended with some degree of injustice, to attribute the prevailing cause of this extensive and distressing evil to the customs and discipline adopted at public schools. True, it would be well, if the exercise taken were of a more active character than the daily promenade, which, in some schools, is almost the only out-door exercise; but, on the other hand, were the dress which the young ladies wear, of a more suitable character, little injury, comparatively, would result from the often decried discipline of boarding schools. A remark of this nature seems the more necessary, as the conductors of ladies' seminaries have often a degree of censure cast upon them, which they by no means deserve.



induced by accidental circumstances, such as blows or falls, are quite as common, and perhaps more common, among males than females ; but lateral curvature, which is by far the most frequent, is almost exclusively confined to the latter. It is melancholy that it should be so frequent among them, and it can only be accounted for by the fact of their being, as I have shown, exposed to certain evils from which men are exempt.

I have pointed out how the dress of females, as ordinarily worn, not only can, but actually does, produce this particular deformity. It is true that many have constitutions sufficiently strong to escape the injurious effects to which they are exposed, but it is equally certain that the tendency of the compression to which they are subject is to reduce the general health and to predispose to many severe and serious affections. Most sincerely do I hope that these observations may draw more general attention to the subject, than which none can be of greater importance to an individual, either in a medical, social or domestic point of view. Although I have had so many cases of spinal deformity under my care, and know that the very worst admit of relief,



and many of complete restoration, yet I am satisfied that in no class of cases more than in these is it true, that "prevention is better than "cure."



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*Fig. 1. Represents the appearance of a little Girl 7 years of age in whom the deforming process commenced at the age of 15 months. At the time of taking the drawing she had been under M<sup>r</sup>. Amesbury's care about 4 months & had greatly improved in form strength & health.*

*This child is the daughter of M<sup>r</sup>. Turner a respectable tradesman who has resided in Crescent Place, Burton Crescent. about twenty five years and who has given me permission to mention his name. The child's case is more fully reported in the following notice.*



*Fig. 2. Shows the appearance of the child a week after the application of M<sup>r</sup>. Amesbury's "Patent Spine Support" by which she was immediately raised one inch and three quarters.*



*Fig. 3. Represents the Child as she appeared dressed, over the "Patent Spine Support," six weeks after its first application. In the course the six weeks she has been raised three inches and a quarter; consequently now stands, with the assistance of the "Patent Spine Support," three inches and a quarter taller than she was six weeks when it was first applied; and upwards of two inches & a half taller than at that time, without the "Patent Spine Support" or any other. The circumference of the chest, over the protuberance forming the curvature in the spine, has now diminished about three inches.*